

Applicant : Brosnihan et al
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Attorney's Docket No.: 07043-060002 / B97-065-2

REMARKS

In reply to the Office Action of March 2, 2005, Applicant submits the following remarks. Claims 1, and 28 have been amended. Claims 1-5, 7-12, 23 and 25-31 are now pending after entry of this amendment. Applicant respectfully requests reconsideration in view of the foregoing amendment and these remarks.

Examiner Interview

Applicants thank Examiner Mai for holding a telephonic interview on May 25, 2005. The interview was attended by Examiner Mai, one of the inventors, Tim Brosnihan, and the applicants' counsel, Jennifer Zanolco. During the interview the attendees discussed U.S. Patent No. 5,747,353 ("Bashir").

Section 103 Rejections

Claims 1-5, 7-12, 23 and 28-31 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bashir in view of U.S. Patent No. 4,631,803 ("Hunter"). Claims 26 and 27 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bashir in view of Hunter and further in view of U.S. Patent No. 5,637,189 ("Peeters"). The applicant respectfully disagrees.

Amended claim 1 is directed to a method of fabricating a microelectromechanical system. A first trench is etched in single-crystal silicon. A dielectric isolation layer is deposited in the first trench. After the dielectric isolation layer is deposited, a second trench is etched in the single-crystal silicon.

Bashir describes etching trenches 120, 121 in a silicon layer 106 (Figs. 2 and 10, col. 5, lines 10-29). The trenches 120, 121 are etched simultaneously (*id.*). The trenches 120, 121 are filled with polysilicon (col. 5, lines 30-38). The polysilicon is later removed from one trench 120 (col. 6, lines 45-54). Bashir does not describe two separate steps of etching single-crystal silicon, as required by amended claim 1.

Hunter also fails to suggest or disclose a second step of etching a single-crystal silicon after depositing a dielectric isolation layer in a first trench. For at least this reason, the applicants

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submit that no *prima facie* case of obviousness has been made with respect to amended claim 1, and claims 2-5, 7-12, 23 and 28-31, which depend from claim 1.

Peeters also fails to suggest or disclose a second step of etching a single-crystal silicon after depositing a dielectric isolation layer in a first trench. For at least this reason, the applicants submit that no *prima facie* case of obviousness has been made with respect to claims 26 and 27.

The applicants further submit that the claims have been amended merely to advance prosecution and that the amendments are not required for patentability over the combination of Bashir and Hunter. Claim 1, before and after amendment, requires etching a second trench, the second trench defining a microstructure including a plurality of elements laterally anchored to the isolation trench such that the isolation trench provides electrical isolation for the anchored elements of the microstructure from each other. The applicants sustain their argument that the hanging mass 142 and fixed electrodes 144 are not isolated from one another by an etching step.

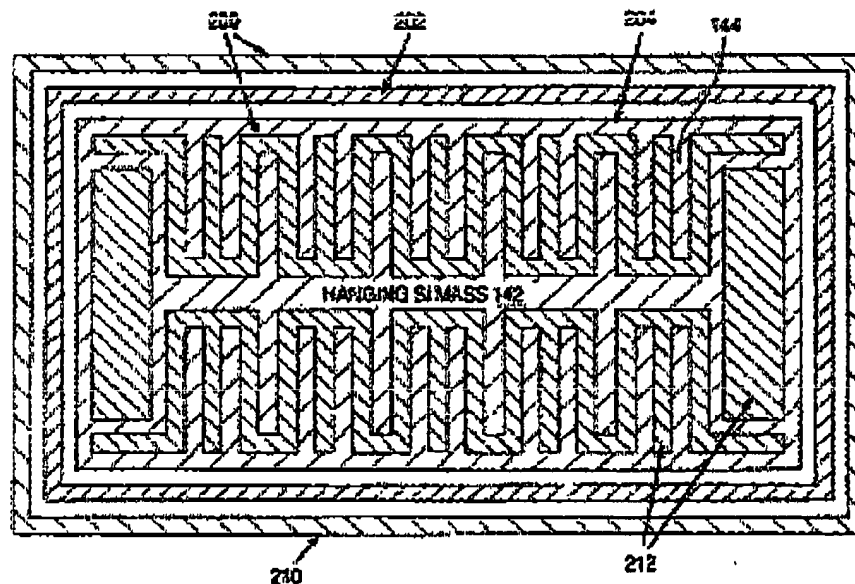


FIGURE 10

As shown in Fig. 10 of Bashir, mask 200 is the mask used to form the trenches 120 and 121 (col. 8, lines 12-27). Mask 200 does not isolate moveable 142 and fixed electrode 144

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members. Mask 204 is a sensor mask used to define the moveable 142 and fixed electrode 144 members. As shown, mask 204 forms a continuous pattern and does not isolate moveable 142 and fixed electrode 144 members. Elements 212 are the trenches where polysilicon is removed from the device (*id.*) Neither the etching of elements 212, nor any other mask or etching step, separates the hanging mask 142 from the fixed electrodes 144. Therefore the moveable 142 and fixed electrode 144 members are one contiguous element of the accelerometer and are not physically isolated from one another. Examiner's reference to Fig. 9, illustrating a cross sectional view, also does not show that the moveable 142 and fixed electrode 144 members are isolated.

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Respectfully submitted,

Date: 6/2/05


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